

**IN THE ABSTRACT:**

Please add the following abstract of the disclosure to read as follows:

On respective surfaces of the work pressing site and the body part of the portion having a less diameter of a preliminary formed article comprising SKH51 (a Fe base alloy), a powder of a material containing an element enhancing the hardness of SKH51 and a powder of a material containing an element being contained in SKH51 and not enhancing the hardness of SKH51 are applied respectively. By the heat treatment of the preliminary formed article after the above application, W and the like having been contained in an application agent is diffused into the surface side in the work pressing site, whereas, in the body part of the portion having a less diameter, W and the like having been contained in SKH51 is diffused into the surface side. As a result, a diffusion layer, wherein hardness increases as the distance from the surface decreases, is formed inside the work pressing site, and simultaneously, a concentration change portion, wherein toughness improves as the distance from the surface decreases, is formed in the body part of the portion having a less diameter.